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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,514	04/17/2001	Karl K. Rink	AAI-14052	6593

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EXAMINER
HARDEE, JOHN R

ART UNIT	PAPER NUMBER
1751	6

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary	Application No.	Applicant(s)	
	09/836,514	RINK ET AL.	
	Examiner	Art Unit	
	John R Hardee	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-31 and 36-63* is/are pending in the application.

4a) Of the above claim(s) *27-29,43-46,48-52,55,56,58-60 and 63* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25,26,30,31,36-42,47,53,54,57,61 and 62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) *25-31 and 36-63* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group III and cancellation of claims drawn to non-elected subject matter are acknowledged with appreciation. Applicant's election of a combination of ammonium nitrate and potassium t-butyl carbonate without traverse is acknowledged.

The restriction and election requirements are made FINAL.

2. Claims 27-29 and 43-46, 48-52, 55, 56, 58-60 and 63 are withdrawn from consideration by the examiner as being drawn to embodiments non-elected without traverse.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 25, 26, 30, 31, 36-42, 47, 53, 54, 57, 61 and 62 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant has recited a method in which a water supplying compound reacts to form water, and that this water reacts with a water reactive fuel precursor to form a fuel. The fuel may then

react with an oxidant stored in a pressurized gas. Applicant has not supplied evidence that the water supplying compound forms water on the time scale required to react with the water reactive fuel precursor, especially in those cases where the water supplying compound and the precursor are mixed. Can applicant say with confidence and supply evidence to support the contention that water, be it liquid or steam, reacts with the precursor, rather than the precursor reacting with ions or radicals? Could the precursor not be reacting with evolved heat to decompose? What is the product of water and, say, potassium t-butyl carbonate when they react? Potassium t-butyl carbonate appears to be a simple salt which would merely dissociate in the presence of water.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 25, 26, 30, 31, 36-42, 47, 53, 54, 57, 61 and 62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant states that the use of water-reactive fuels has been limited in inflator technology. The water reactive devices of which the examiner is aware are blasting devices which use a thermite reaction to generate heat and molten metal, which then reacts with water in a reservoir to form large quantities of heat and steam. See, e.g., US 4,280,409. If applicant is drawing parallels between this sort of device and his own invention, this is confusing, as the devices operate on different principles. Calling a carbonate a water reactive fuel precursor of this sort does not adequately define applicant's invention. This is all the more problematic because applicant has not established that the claimed fuel

precursors do react with water, or that they can react with water, or what fuel products are evolved in the process. The applicant may be his own lexicographer, but he must be explicit about doing so at the time of filing, especially where applicant's usage is contrary to what is accepted in the art.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 25, 26, 31, 36-38, 40, 42, 47 and 54 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 00/29261. The reference discloses carborane containing airbag inflators and methods for their inflation. According to one inflation method, combustion of a carborane fuel and a primary oxidant form combustion products including heat and a quantity of a first product fuel species (p. 6, lines 26+). A portion of the first combustion products inflate the device. Water is a preferred primary oxidant (p. 12, lines 20+). Note the inflators in Tables 1 and 2, in which ammonium nitrate is the source of the water oxidant. The combustion products react with pressurized nitrous oxide in the presence of pressurized inert gas in a combustion chamber to form product gases which inflate the airbag. The fuel and oxidant may be stored as a mixture (p. 13, lines 6+) or segregated (p. 12, lines 30+). Chamber 16 has a rupture disc 32 covering perforation 30 (see drawing on front). Liner 36 maintains the charge in discharge

proximity with initiator device 42. As all of the limitations of the claims have been met, this disclosure constitutes anticipation.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 25, 26, 31, 36-38, 40, 42, 47 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/29261. The claims are obvious because they are anticipated.

13. Claims 25, 26, 31, 36-39 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielson et al., US 6,224,099 B1. The reference discloses hybrid airbag inflator systems and igniter compositions for same. The burning of a small amount of propellant propels a piston into a container of *inert* gas which ruptures. The enclosed gas mixes with and is heated by gases generated by the burning of the propellant (col. 5, lines 15-35). Suitable gas generants comprise an oxidizer, such as ammonium nitrate (col. 6, lines 39+). Gas generant compositions may further comprise a binder, such as polypropylene carbonate (col. 7, lines 24+). The chamber must be perforated in order to allow travel of the piston and to allow gas to escape (col. 8, lines 11-13). End piece 4 holds squib 5, and may be considered a liner for the housing (col. 8, lines 15-16). This reference differs from the claimed subject matter in that it does not disclose a method which reads on applicant's claims with sufficient specificity to constitute anticipation.

It would have been obvious at the time the invention was made to use an airbag in the claimed method, because this reference teaches that all of the components recited by applicants are suitable for inclusion in a hybrid airbag. The person of ordinary skill in the surfactant art would expect the recited compositions to have properties similar to those compositions which are exemplified, absent a showing to the contrary. Regarding the chemistry recited in the method steps, the examiner takes the position

that the same materials will react to give the same products, whether in applicant's airbag or the prior art airbag.

14. Claims 25, 26, 31 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al., US 5,486,248. The reference discloses extrudable gas generants for hybrid airbag inflators. The generant comprises about 70-90% of an oxidizer. Ammonium nitrate is disclosed as being a useful oxidizer (col. 5, lines 40+). Coolants may be added at up to 30% of the composition. Suitable coolants include magnesium, lithium, calcium and strontium carbonate salts (col. 5, bottom). This reference differs from the claimed subject matter in that it does not disclose a method which reads on applicant's claims with sufficient specificity to constitute anticipation.

It would have been obvious at the time the invention was made to use an airbag in the claimed method, because this reference teaches that all of the components recited by applicants are suitable for inclusion in a hybrid airbag. The person of ordinary skill in the surfactant art would expect the recited compositions to have properties similar to those compositions which are exemplified, absent a showing to the contrary. Regarding the chemistry recited in the method steps, the examiner takes the position that the same materials will react to give the same products, whether in applicant's airbag or the prior art airbag.

15. Any prior art made of record and not relied upon is of interest and is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to the examiner, Dr. John R. Hardee, whose telephone number is (703) 305-5599. The examiner can normally be reached on Monday through Friday from 8:00 until 4:30. In the event that the examiner is not available, his supervisor, Dr. Yogendra Gupta, may be reached at (703) 308-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

John R. Hardee
Primary Examiner
March 7, 2003